

CLAIMS:

1. A slide feeding unit for a microscope, comprising

(a) a magazine for receiving slides; said magazine including

5 (1) a base plate;

(2) two end walls;

(3) a side wall;

(4) an open side;

(5) a toothed rack secured externally to said side wall and

10 being parallel to said base plate; and

(6) slide guiding elements oriented perpendicularly to said open side;

(b) a magazine moving mechanism including

(1) a trough for receiving said magazine in a fitting relationship

15 with said base plate and said end walls; said trough having opposite side plates each provided with openings;

(2) two shafts rotatably supported by said trough and extending along said side plates, respectively;

(3) first drive means for rotating said shafts;

20 (4) feeding gears rotatably supported in respective said openings of said side plates and being adapted to mesh with said toothed rack for advancing said magazine in a direction of advance;

(5) lifting gears rotatably held in said side plates and having inner faces substantially coplanar with an inner surface of said side plates; each 25 lifting gear having two pins arranged at opposite ends of the lifting gear diameter and oriented perpendicularly to said face of the respective lifting gear; and

(6) driving worm gears rotated by said shafts and meshing with said feeding gears and said lifting gears; and

(c) a slide feeding device traversing said trough and including

(1) a robot arm displaceable perpendicularly to said direction of advance of said magazine for removing a slide from said magazine; and
(2) second drive means for moving said robot arm.

5 2. The slide feeding unit as defined in claim 1, wherein the magazine moving mechanism is arranged in a tilted position wherein the magazines are tilted backward, their base plates including an angle of about 10 to 45° with respect to a horizontal plane.

10 3. The slide feeding unit as defined in claim 1, wherein said slide guiding elements comprise rails disposed on said base plate of said magazine.

4. The slide feeding unit as defined in claim 1, wherein said second drive means comprises a motor and a control spindle rotated by said motor.

15 5. The slide feeding unit as defined in claim 4, wherein said second drive means further comprises a limit switch coupling said motor to said control spindle.

6. The slide feeding unit as defined in claim 5, wherein said motor has a
20 motor shaft; further wherein said limit switch includes

(a) a sleeve affixed to said motor shaft;
(b) a helical spring wound externally on said sleeve and having a bent-out terminus; and
(c) a driven disk force-transmittingly coupled to said bent-out terminus and connected to said control spindle.

25 7. The slide feeding unit as defined in claim 1, wherein said robot arm comprises front and rear arms for moving the slides.

8. The slide feeding unit as defined in claim 1, wherein said slide feeding device comprises a hold-down plate for clamping the slides; said hold-down plate being secured to said robot arm for executing rocking motions with respect to said robot arm.

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9. The slide feeding unit as defined in claim 8, further comprising dogs secured to said robot arm for controlling motions of said hold-down plate.

10. The slide feeding unit as defined in claim 1, wherein said magazine moving mechanism further comprises rails attached to said side plates of said trough for vertically guiding said magazine.